

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Review of the Commission’s Rules Governing the	)	WT Docket No. 17-200
896-901/935-940 MHz Band	)	
	)	
Realignment of the 896-901/935-940 MHz Band to	)	RM-11738
Create a Private Enterprise Broadband Allocation	)	(Terminated)
	)	
Amendment of the Commission’s Rules to Allow	)	RM-11755
for Specialized Mobile Radio Services Over 900	)	(Terminated)
MHz Business/Industrial Land Transportation	)	
Frequencies	)	

**REPLY COMMENTS OF THE UTILITIES TECHNOLOGY COUNCIL AND THE GRIDWISE ALLIANCE**

Pursuant to sections 1.415 and 1.419 of the Federal Communications Commission’s (“FCC” or “Commission”) Rules, the Utilities Technology Council (“UTC”) and the GridWise Alliance (“GridWise”) hereby submit these reply comments in response to the Commission’s Notice of Inquiry (“NOI”) in the above-referenced proceeding.<sup>1</sup> The comments in the proceeding focus on the proposal by the Enterprise Wireless Alliance and pdvWireless, Inc. (EWA/PDV) to realign the band.<sup>2</sup> Importantly, there are areas of consensus, though sharp differences remain and some issues warrant additional clarification. Some of the questions that surround the proposal by EWA/PDV have been answered in their comments in response to the NOI, although there are still more questions that need to be answered.

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<sup>1</sup> *Review of the Commission’s Rules Governing the 896-901/935-940 MHz Band*, Notice of Inquiry, WT Docket No. 17-200 (rel. Aug. 4, 2017)(hereinafter “NOI”).

<sup>2</sup> Petition for Rulemaking of the Enterprise Wireless Alliance and Pacific DataVision, Inc., RM-11738 (filed Nov. 17, 2014), <http://appsint.fcc.gov/ecfs/document/view?id=60001008215> (EWA/PDV Petition). EWA/PDV subsequently filed a Supplement containing draft proposed rules. *Ex Parte* Comments, Proposed 900 MHz PEBB Allocation Rules (filed May 3, 2015), <http://appsint.fcc.gov/ecfs/document/view?id=60001011470> (EWA/PDVSUPPLEMENT). The Bureau sought comment on the EWA/PDV Petition and on the Supplement. *See Wireless Telecommunications Bureau Seeks Comment on Enterprise Wireless Alliance and Pacific DataVision, Inc. Petition for Rulemaking Regarding Realignment of 900 MHz Spectrum*, Public Notice, 29 FCC Rcd 14424 (WTB MD 2014); *Wireless Telecommunications Bureau Seeks Comment on Supplement to Enterprise Wireless Alliance and Pacific DataVision, Inc. Petition for Rulemaking Regarding Realignment of 900 MHz Spectrum*, Public Notice, 30 FCC Rcd 4763 (WTB MD 2015).

The following reply comments attempt to capture the on-the-record positions of the parties regarding the main issues related to the proposal by EWA/PDV, as well as the issues related to retaining the existing framework for the 900 MHz band and any minor changes to the existing rules. The position of UTC and the GridWise Alliance remains that utilities need access to licensed broadband spectrum in a frequency range below 1 GHz, but that utilities and other incumbents in the 900 MHz band must be protected from interference and be able to expand capacity for narrowband systems upon which they rely to maintain operational safety, security and reliability. Therefore, UTC and GridWise are pleased to provide these reply comments.

#### **I. Utilities and Other Critical Infrastructure Industries Rely on the 900 MHz Band.**

Comments on the record underscore the importance of the 900 MHz band and the adjacent narrowband PCS channels for utilities and other critical infrastructure industries (CII).<sup>3</sup> Utilities report that they use the 900 MHz band and the narrowband PCS channels for voice and data communications to support a variety of utility applications, including Supervisory Control and Data Acquisition (SCADA) systems, protective relaying, distribution automation, electrical service restoration communications, nuclear security personnel communications to meet Nuclear Regulatory Commission (NRC) requirements, Nuclear Public Notification systems, and Advanced Metering Infrastructure (AMI).<sup>4</sup>

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<sup>3</sup> See 47 C.F.R. §90.7. Critical Infrastructure Industries are defined as “state, local government and non-government entities, including utilities, railroads, metropolitan transit systems, pipelines, private ambulances, volunteer fire departments, and not-for-profit organizations that offer emergency road services, providing private internal radio services provided these private internal radio services are used to protect the safety of life, health or property; and are not made commercially available to the public.”

<sup>4</sup> See Comments of Duke Energy in GN Docket No. 17-200 at 3 (filed Oct. 2, 2017)(reporting that Duke Energy utilizes the 900 MHz B/ILT bands in a large portion of the North Carolina and South Carolina service territories, and all of the Florida service territory. For these 900 MHz B/ILT bands, Duke Energy currently holds 48 discrete PLMR licenses covering a total of 173 discrete frequency pairs.”); Comments of Exelon in GN Docket No. 17-200 at 3 (filed Oct. 2, 2017)(stating “PECO holds licenses in the narrowband PCS band, channels starting at 901/940 MHz, that form a key component of its communications network for the efficient management of its utility grid. PECO uses this spectrum for advanced meter reading, outage management and distribution automation. ComEd currently uses spectrum within the 896-901 MHz and 935-940 MHz bands for its mission critical PLMR communications system for emergency communications and dispatch, outage recovery and general field communications.”); Comments of Lower Colorado River Authority at 3 (filed Oct. 2, 2017)(describing how LCRA used its 900 MHz system during Hurricane Harvey to monitor river conditions and manage flooding between La Grange, Texas and Matagorda Bay; and how it also activated its 900 MHz Emergency Communications Unit to support public safety operations and restoration efforts in the Rockport, Texas and Port Aransas areas, as well as for surveying damage along LCRA transmission lines between Corpus Christi and Rockport, Texas); Comments of

Railroads also use the 900 MHz narrowband channels to support Positive Train Control (PTC) and other life safety applications.<sup>5</sup> Utilities, railroads and other parties reported that they plan to expand their existing 900 MHz narrowband systems in the future.<sup>6</sup> Utilities have made significant investments in their 900 MHz systems and these systems have a positive impact on the economy.<sup>7</sup> They were also used to respond to the recent major hurricanes that struck Florida, Georgia, Louisiana and Texas.<sup>8</sup> Owing to the critical nature of the communications that they carry, these systems must meet high standards for

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NextEra Energy at 2 (stating that “FPL uses its 900 MHz private land mobile radio (“PLMR”) system for dispatch communications associated with electrical service restoration and maintenance including emergency notifications and disaster recovery communications; voice communications for Nuclear power plant security operations required by Nuclear Regulatory Commission regulations; nuclear siren system operations for public alerts within the 10-mile Emergency Protection Zone (“EPZ”) of the Turkey Point and St. Lucie Nuclear Power Plants; smart grid energy efficiency monitoring; and electric distribution system controls.”); Comments of Southern Company Services at 2 (reporting how “Southern’s AMI system is part of a comprehensive infrastructure modernization program that provides benefits to electric and gas customers, the environment, and the company far beyond the convenience of remote meter reading.”) and Comments of Westar at 3 (filed Oct. 2, 2017)(stating that “Westar relies upon this spectrum for its private land mobile radio (“PLMR”) system, a PTT radio system that allows multiple personnel to communicate and monitor operations at the same time. This point-to-multipoint voice communication is essential to the performance of many mission-critical tasks and operations.”)

<sup>5</sup> Comments of the Association of American Railroads in GN Docket No. 17-200 at 3 (filed Oct. 2, 2017)(stating that “AAR holds a ‘ribbon’ license in the 900 MHz band, which covers the geography within 70 miles on either side of most of the nation’s railway tracks. Through its members, AAR uses the licensed, six paired frequencies on a nationwide basis for Advanced Train Control System (“ATCS”) operations.”)

<sup>6</sup> See Comments of the Association of American Railroads at 3 (“Although broadband may become a suitable solution for freight train operations at a later point, railroads and other mission-critical wireless users could currently benefit from the greater flexibility that wider channels permit.”); Comments of Duke Energy at 3 (“Duke Energy is currently undertaking a major expansion and modernization of its energy delivery grids and supporting infrastructure, as well implementing significant changes in the character of that equipment. The changing sources of generation, the growing availability and implementation of distributed energy resources, and the growth of consumer energy management systems will continue to have a dramatic impact on the nature of Duke Energy’s network communications systems. This modernization is requiring the expansion and upgrading of Duke’s communication systems for monitoring, managing, and controlling its energy delivery infrastructure.”) and Comments of Southern at 7 (“Current and future uses of AMI data and functionalities continue to expand, and any disruption of AMI services due to interference, now or in the future, will significantly hamper the ability of Southern and other utilities to continue to provide electric and gas service to the public on a safe, reliable, and efficient basis.”)

<sup>7</sup> Comments of the Critical Infrastructure Coalition at 7 (stating that “Sensus’s NPCS FlexNet users have roughly 15 million endpoints and thousands of base stations, which represent an investment by FlexNet customers of well in excess of \$1 billion in equipment. In addition, Sensus has invested hundreds of millions of dollars in ongoing system and equipment design and improvements.”)

<sup>8</sup> See e.g. Comments of Southern at 5 (“A very recent example of the valuable role that such extensive, real-time data collection can play in the operation of the electric grid can be found in Georgia Power’s recovery operations following Hurricane Irma.”)

reliability, and as such they have been able to operate relatively free from interference.<sup>9</sup> Even parties that support realigning the 900 MHz band for broadband recognize the critical nature of the narrowband systems and the need to protect them from interference.<sup>10</sup> As such, utilities and other CII are making effective and innovative use of the existing 900 MHz narrowband spectrum.<sup>11</sup>

## **II. Most Comments Support Retaining the Existing Band Configuration.**

While utilities need access to broadband to meet their increasing communications needs, most utilities that commented on the record support retaining the existing band configuration.<sup>12</sup> As Lower Colorado River Authority (LCRA) explained in its comments, “there is still a strong public interest in maintaining the current allocation and eligibility requirements in the 900 MHz band for narrowband B/ILT channels.” LCRA argues that the Commission should give significant weight to this statement on the record – to support existing narrowband systems and their ability to expand to meet future demands.<sup>13</sup> Utilities and other CII report that they need to continue to operate narrowband systems to ensure network reliability. As Westar explains, communications reliability is essential for storm restoration, large civic events, and in order to recover from a “black start.”<sup>14</sup> Commercial communications systems do not

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<sup>9</sup> See Comments of Southern at i and 4 (“Southern has now been operating this extensive AMI system with minimal interference issues for more than nine years and continues to deploy new devices and to develop and add new functionality to the system to further enhance the safety, reliability, and efficiency of its extensive electric and gas distribution system.” Also underscoring that, “Southern’s AMI System is a Critical Part of its Electric and Gas Distribution System”).

<sup>10</sup> See e.g. Comments of the Enterprise Wireless Alliance and pdvWireless, Inc. in GN Docket No. 17-200 at 14 (filed Oct. 2, 2017)(hereinafter “Comments of EWA/PDV”)(“EWA/PDV have heard the concerns of certain licensees operating narrowband 900 MHz systems and herein reconfirm their position that innovation cannot come at the expense of degrading narrowband systems for incumbents that choose to continue operating them.”)

<sup>11</sup> See e.g. Comments of the Critical Infrastructure Coalition at 8 (underscoring that “Users and vendors are continuing to develop narrowband innovations within the existing 900 MHz framework.”)

<sup>12</sup> See e.g. Comments of Lower Colorado River Authority at 3 (filed Oct. 2, 2017)(underscoring that “The Public Interest Would Best Be Served by Retaining the Current Licensing and Eligibility Rules.”)

<sup>13</sup> *Id.*

<sup>14</sup> Comments of Westar Energy, Inc. at 3-4 (filed Oct. 2, 2017)(hereinafter, “Comments of Westar”).

provide the reliability, availability and exclusivity that utilities need.<sup>15</sup> Moreover, utilities and railroads expressed concern about using a third-party provider to operate their 900 MHz systems. As the Association of American Railroads explained, they “need to be able to control and be responsible for all aspects of their networks, including spectrum and infrastructure.”<sup>16</sup> They also “need their networks to span rural, suburban, and urban areas. A third party ‘host’ network operator may be slow to build out in certain areas, such as rural and suburban areas, especially if low demand does not make such efforts profitable.”<sup>17</sup> For all of these reasons, many utilities and CII support retaining the existing 900 MHz band configuration.

### **III. The Record Reflects Some Support for Realignment on the Condition That Incumbents Are Protected from Interference.**

The record reflects that there is also support among some 900 MHz incumbents for the proposed realignment of the band to support broadband. As the American Petroleum Institute explained, “a modernization around IP (Internet Protocol) is afoot,” and that it is “against this background that the concept of a Private Enterprise Broadband (“PEBB”) service offering begins to make sense.”<sup>18</sup> API emphasizes that “any proposal to modify the rules for the 900 MHz band must clearly protect narrowband systems.” Specifically, API conditions its support provided that, “1) [t]here must be sufficient spectrum to accomplish incumbent relocations and account for future uses; 2) [i]ncumbents must be fully compensated for their costs of relocation; and 3) the Commission must ensure the PEBB can coexist with narrowband users.”<sup>19</sup> Other comments also support the proposed realignment. Western Farmers Electric Cooperative believes, “the Commission should designate some portion of the 900 MHz band for

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<sup>15</sup> *Id.*

<sup>16</sup> Comments of the Association of American Railroads at 6.

<sup>17</sup> Comments of the Association of American Railroads at 6-7.

<sup>18</sup> Comments of the American Petroleum Institute at 3-4 (filed Oct. 2, 2017).

<sup>19</sup> *Id.* at 5-7.

broadband operations.”<sup>20</sup> It goes on to explain that “broadband networks which can service requirements that were previously serviced by narrowband channels, will better support existing and future requirements.”<sup>21</sup>

#### **IV. More Information Is Needed to Determine if Realignment of the 900 MHz Band Is Feasible and Would Serve the Public Interest.**

Clearly, utilities and other critical infrastructure industries are interested in pursuing a strategy to support broadband or at least wideband communications. Concerns remain, however, about the proposed realignment of the band and questions that surround the details for relocation of incumbents, as well as adjacent channel interference. Laudably, EWA and PDV have filed comments that provide additional technical information that should help to address some of the uncertainty surrounding the proposed realignment of the band. But fundamental questions remain regarding the impact on narrowband 900 MHz below 898/937 MHz, including the noise floor after the PEBB is implemented and operational. Additionally, technical studies predict that there would be significant harmful interference to operations in the narrowband PCS channels, and that EWA/PDV understated out-of-band emissions (OOBE). However, comments by Ericsson as well as EWA/PDV provide technical information about filtering capabilities and other interference mitigation techniques which may show that coexistence between the proposed 3X3 MHz broadband block and the 2X2 MHz narrowband block of spectrum is possible.

Still, there are fundamental differences between the comments on both sides about the size of the guard band – if any – that would be needed to protect narrowband operations from broadband operations.<sup>22</sup> Finally, there are also disparities between comments by Motorola and LCRA regarding the interference standard that should apply. Motorola asserts that a standard -98 dBm for mobiles and -95 dBm for portables would be sufficient, but LCRA and others believe that the standard should be set at -

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<sup>20</sup> Comments of Western Farmers Electric Cooperative at 2.

<sup>21</sup> *Id.*

<sup>22</sup> See e.g. Comments of EWA/PDV at n. 67 (suggesting that no guard band should be required).

110 dBm. Moreover, EWA/PDV also maintain their position that the interference standard should be no better than what was established in the 800 MHz band during rebanding. They also disclaim any protection against an increase in the noise floor.<sup>23</sup>

Apart from these technical issues, there are broader concerns that still need to be addressed, such as the ability to voluntarily agree to a realignment in a given region of the country, the eligibility of the PEBB licensee, the cost of access to the PEBB (including the capital and operational expenses of the network), the appropriate geographic size of the licenses, as well as the details of the relocation process, including reimbursement of costs. Finally, there are underlying issues associated with the realignment regarding the windfall that the licensee would gain as well as whether an auction of the spectrum would be necessary. To be sure, EWA/PDV support overlay auctions in “lightly-licensed” major trading areas (MTAs), but UTC and GridWise submit that a licensee’s right to relocation and reimbursement is not and has never been dependent upon the extent to which the band is used.<sup>24</sup> Moreover, those systems carry traffic that is just as critical as systems in other parts of the country – perhaps more so to the extent that utility substations, switching stations and other critical assets tend to be located in remote areas. Accordingly, UTC and GridWise cannot agree with EWA/PDV’s suggestion that licensees in those “lightly-licensed” MTAs should lose the same rights that would apply to licensees in MTAs where the use of the band is heavy.

These issues are significant and must be addressed. For example, NextEra estimates that the capital cost of relocating its systems would be \$70 to \$90 million, and the annual operating cost impact is estimated at no less than \$7 to \$9 million. Similarly, the Association of American Railroads estimates that its relocation costs would be \$100 million. Moreover, comments universally agree that the relocation process could take too much time, similar to the process that is still ongoing with 800 MHz rebanding.

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<sup>23</sup> *Id.* at 31 (referring to licensees’ “non-existent ‘right’ to no increase in the noise floor over time.”)

<sup>24</sup> EWA/PDV Comments at 25-27 (defining “lightly-licensed” MTA’s as those having as those where 80 or more channels are unassigned and being held in inventory by the FCC.”)

Comments also oppose any forced relocation of incumbents, and some oppose relocation entirely because they state that no alternative band exists providing the same performance capabilities as the 900 MHz band. UTC and GridWise submit that the Commission must address these issues with the stakeholders, and that it should not move forward with a rulemaking until these issues are resolved to the satisfaction of the incumbents in the band.

UTC and GridWise also support reserving the 900 MHz band for utilities and CII going forward. Comments on the record also support this recommendation as it would help to ensure that utilities and other CII have access to the broadband spectrum needed for both increasing capacity and coverage. Even those parties supporting realignment of the band are opposed to a full 5X5 realignment of the band, which would threaten to displace narrowband systems completely. These comments tend to agree that an incremental approach towards any realignment would be more appropriate, especially considering the criticality of the communications systems in the 900 MHz band.



## **V. Conclusion**

UTC and GridWise appreciate the technical information that has been provided in the comments on the record regarding the 900 MHz band and its potential realignment; and UTC and GridWise look forward to working with the parties to encourage further field testing of the potential for coexistence between narrowband and broadband systems in the 900 MHz band. UTC and GridWise continue to oppose changing the rules to enable B/ILT channels to be converted for commercial use, and oppose auctioning channels as well. The Commission should promote utility access to broadband to meet their increasing communications needs by ensuring that any realignment of the 900 MHz band protects incumbent utility narrowband communications systems and enables them to access additional channels to increase capacity and coverage. In that regard, the Commission should reserve the 900 MHz band for utilities going forward. Finally, the Commission should retain existing site-by-site licensing in the 900 MHz band and should not adopt geographic area licensing and auctions, nor should it allow B/ILT channels to be converted to commercial use.

Respectfully,

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